## Claims

1. Method for filtering an EMG-signal out of a raw signal, captured via a number of electrodes which are designed to be arranged to capture signals from a diaphragm and be functionally connected to a respective signal channel, wherein a raw signal is received on respective channels from each electrode, characterized in that a signal-to-noise ratio is determined for each signal channel and that a weight factor is arranged for each signal channel based on the signal-to-noise ratio, and that the channels are summed with use of the said weight factors.

2. Method according to claim 1, characterized in that steps for each channel:
- an EKG activity is estimated
- an EMG activity is estimated
- a signal to noise ratio S/N is determined based in the estimated EKG activity level and the estimated EMG activity level
- from the signal/noise ration a weight factor is determined
- the weight factor for each channel is used with the summation of the channels to receive the total EMG signal.
- and the total EMG signal is normalized.

3. Method according to claim 1 or 2, characterized in that the signal/noise ratio is determined according to the equation $\frac{R^2}{R+S}$, where R constitutes the estimated EMG-activity, S constitutes the estimated EKG-activity and n is an integer $\geq 1$.

4. Method according to one of the above claims, where the EKG activity for a channel is estimated through filtering an estimated EKG signal out of a raw signal which is received on the channel and comparing the estimated EKG signal with a threshold value for the EKG signal.

5. Method according to one of claims 1-3, where the EKG activity fir a channel is estimated through a calculated probability function PECG which gives the probability that an EKG signal included in the raw signal is received by the channel.

6. Method according to one of the above claims, wherein the EKG activity is only estimated if one of the channels shows an EKG signal.

7. Device (2) designed to filter an EMG signal out of a raw signal, captured via a number of electrodes, where the device comprises inputs for a series of signal channels which are designed to receive a signal from one of a number of electrodes, and an analysis unit (12) connected to the inputs for therefrom receiving the raw signals, wherein the analysis unit comprises signal working means (24, 26, 28, 39, 32, 34) to work the received signal for each channel, characterized in that the signal working means (24, 26, 28, 39, 32, 34) is designed to determine a signal noise ratio for each signal channel, arrange that a weight factor for each signal channel based on the signal noise ratio, and summate the signal channels by using the said weight factors

8. Device (2) according to claim 7, characterized in that the analysis unit (12) comprises, for each signal channel

- means (38,40) for estimating an EKG activity based on the received signal from the channel,
- means (44,42) for estimate an EMG activity based on the received signal for the channel
- means (60) for determining a signal/noise ratio S/N based on the estimated EKG activity level and the estimated EMG activity level
- weighing means (62) for determining a weight factor out of the signal/noise ratio
-summing means (36) for receiving the signals from the signal working means (24, 26, 28, 39, 32, 34) and summarize the signals using the weight factor for each channel to obtain the total EMG signal

- and normalizing means in the summarizer (36) for normalizing the total EMG signal.

9. Device according to claim 7 or 8, wherein the analysis unit (12) is designed to determine the signal/noise ratio according to the equation $\frac{R^n}{R+S}$ where R represents the estimated EMG activity, S represents the estimated EKG activity and n is an integer $\geq 1$.

10. Device according to one of claims 7-9, where the means (38, 40) to estimate the EKG activity is designed to filter an estimated EKG signal out of a raw signal which is received on the channel and compare the estimated EKG signal with a threshold value for the EKG signal.

11.Device according to one of claims 7-9, where the means (38, 20) to estimate the EKG activity is designed to calculate the probability function PECG which gives the probability that an EKG signal is included in the raw signal which is received by the channel.

12. Device according to one of claims 7-11, where the means (38, 40) for estimating the EKG activity is designed to estimate the EKG activity only if one of the channels shows an EKG signal.

13. The computer program product comprising computer code which, when it is run in an analysis unit in a device to filter an EMG signal out of a raw signal, captured by a number of electrodes, wherein a signal comprising the EMG signal is received by a respective channel from each electrode, the device may execute the following steps, for each channel: determining of a signal noise ratio, ordering of a weight factor for each signal channel based on the signal noise ratio, and summarizing the channels using the said weight factors.

14. The computer program product according to claim 13, designed to execute the following steps:

- estimating an EKG activity
- estimating an EMG activity

-determining a signal/noise ratio S/N based on the estimated EKG activity level and the estimated EMG activity level

- determining a weight factor from the signal/noise ratio

-summarizing the channels using the weight factor for each channel to obtain the total EMG signal

- and normalizing the total EMG signal.

15. The computer program product according to claim 13 or 14, wherein the signal/noise ratio is determined according to the equation $\frac{R^n}{R+S}$ where R represents the estimated EMG activity, S represents the estimated EKG activity and n is an integer $\geq 1$.

16. The computer program product according to one of claims 13-15, designed to estimate the EKG activity from a channel by filtering an estimated EKG signal our of a raw signal which is received by the channel and compare the estimated EKG signal with a threshold value for the EKG signal.

17. The computer program product according according to one of claims 13-15, designed to estimate the EKG activity for a channel by calculating a probability function PECG which gives the probability that en EKG signal is included in the raw signal which is received by the channel.

18. The computer program product according according to one of claims 13-17, designed to estimate the EKG activity only if one of the channels shown an EKG signal.

19. The computer program product according to one of claims 13-15, designed on a storage medium.